Amendments in the claims:

Please amend claims 1 and 7 as follows:

Claim 1 (Currently Amended): An illuminant which converts incident electrons into fluorescence, comprising:

a substrate being transparent with respect to the fluorescence; and

a nitride semiconductor layer provided on and in direct contact with one surface of said substrate while covering the entire one surface of said substrate, said nitride semiconductor layer having a quantum well structure that emits fluorescence in response to the electron incidence.

Claim 2 (Original): An illuminant according to claim 1, wherein the well width of said quantum well structure is 4nm or less.

Claim 3 (Original): An electron beam detector comprising:

an illuminant according to claim 1; and

a photodetector having a sensitivity for fluorescence emitted from said illuminant.

Claim 4 (Original): A scanning electron microscope comprising:

an electron beam detector including an illuminant according claim 1 and a photodetector having a sensitivity with respect to fluorescence emitted from said illuminant; and

a vacuum chamber including at least said illuminant installed inside,

wherein said scanning electron microscope guides secondary electrons, which are generated from a sample disposed inside said vacuum chamber by scanning the surface of the sample with an electron beam, to said electron beam detector and takes an image of the sample by making correspondence between the scanning position of the sample and the output of said electron beam detector.

Claim 5 (Original): A scanning electron microscope according to claim 4, wherein the well width of said quantum well structure in said illuminant is 4nm or less.

Claim 6 (Original): A mass spectroscope comprising:

an electron beam detector including an illuminant according to claim 1 and a photodetector having a sensitivity for fluorescence emitted from said illuminant;

a vacuum chamber including at least said illuminant installed inside;

a separating section which spatially or temporally separates ions generated from a sample inside said vacuum chamber in accordance with masses of the ions; and

a dynode to be irradiated with ions that have been separated at said separating section,

wherein said mass spectroscope guides secondary electrons, which are generated from said dynode in accordance with the incidence of ions onto said dynode, to said electron beam detector, and carries out mass spectroscopy of the sample based on the output of said electron beam detector.

Claim 7 (Currently Amended): A mass spectroscope according to claim ~~7~~ 6, wherein the well width of said quantum well structure in said illuminant is 4nm or less.